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SPACE WAR MEETS INFO WAR
THE INTEGRATION OF SPACE AND INFORMATION
OPERATIONS

by

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Contents

	<i>Page</i>
DISCLAIMER	ii
INTRODUCTION	iv
SPACE OPERATIONS	1
INFORMATION OPERATIONS.....	5
INTEGRATED SPACE AND INFORMATION OPERATIONS...THE NEW CONSTRUCT	8
RECOMMENDATIONS	11
BIBLIOGRAPHY	12

Part 1

Introduction

“I will make this point once: it is all global, stupid. It isn’t air; it isn’t space; it isn’t Service oriented. It is all global. We are going to work in a completely different analytical paradigm than the one we are accustomed to applying to our missions.”

— Lt Gen Kenneth Minihan, Former Director, National Security Agency

Operation DESERT STORM has been widely proclaimed as the first “space war” the United States fought...but was it really? Or was it really the first “information age” war? Since our ability to operate in space was never challenged, I contend there was never really a battle for space superiority. There was however, a battle for information superiority. Both coalition and Iraqi forces conducted surveillance and reconnaissance operations to gain and exploit information, while simultaneously taking actions to mask their true intentions. The coalition forces were able to obtain information superiority over Iraq through the employment of superior intelligence, surveillance and reconnaissance (ISR) assets, and effective OPSEC and deception activities. This information superiority enabled the coalition forces to monitor Iraqi forces and convince Sadaam Hussein that an amphibious operation was forthcoming, while simultaneously moving forces to conduct the now famous “left hook” maneuver that caught Sadaam and his forces by surprise.

Joint Vision 2010 identifies information superiority as a critical enabler for the emerging concepts of dominant maneuver, precision engagement, full dimensional protection, and focused

logistics. JV 2010 further defines information superiority as “the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary’s ability to do the same.” (1-16) U.S. military forces conduct defensive and offensive information operations to gain and maintain information superiority over an adversary. U.S. military forces also conduct defensive and offensive counterspace operations to gain and maintain space superiority over an adversary. But what does space superiority really provide a Joint Force Commander? Space power doesn’t service targets with heat, blast or fragmentation...space power’s effect on the battlefield is the provision of information.

“The support provided by space forces significantly reduces the fog, friction, and uncertainty of warfare. Joint forces can rapidly see, hear, and exploit the environment when space forces are properly integrated into the joint plan. This results in improved situational awareness, reduced response time, and a considerably more transparent battlespace, which provides the JFC dominant battlespace awareness.” (2, xiv)

Therefore, one must investigate whether these two missions can be integrated to optimize the effect in the battlespace at the operational level of warfare. Recent decisions within the DoD indicate that leaders at the highest levels realize that space operations and information operations are inextricably linked. Changes to the Unified Command Plan have assigned increasing responsibilities for information operations to the United States Space Command (USSPACECOM). Effective 1 Oct 1999 USSPACECOM assumed responsibility for the military Computer Network Defense mission and command and control of the Joint Information Operations Center (formerly the Joint Command and Control Warfare Center). Additionally, USSPACECOM will assume responsibility for the military Computer Network Attack mission on 1 Oct 2000. (7, 1)

The thesis of this paper is that until current legal, political and technical constraints are overcome concerning the weaponization of space, space operations should focus on integrating

into the information operations campaign with the goal of gaining and maintaining information superiority. This paper will describe Space Operations and Information Operations as defined by current and draft joint publications, and then discuss the integration of these two areas to produce a synergistic effect on the operational-level battlefield.

Part 2

Space Operations

“We’re also working hard on our newest space integration issue – that of information operations. With the tight linkage between space and information, any future battle for space superiority will really be a battle for information superiority.”

— General Richard B. Myers

The doctrinal void for military space operations should soon be filled by the approval and dissemination of the draft Joint Publication 3-14: Tactics, Techniques and Procedures for Space Operations. This publication provides the reader with an overview of the missions conducted by military space forces, establishes procedures for space support to the warfighter, and identifies space forces that deploy in-theater.

Joint Publication 3-14 identifies four primary missions for military space forces: space support operations, force enhancement, space control, and force application. (4, III-1) “Space support operations are space operations that include spacelift, command and control of satellites, and surveillance and deconfliction of systems in space.” (4, xi) These operations provide the physical capabilities that are utilized to execute military space operations. This mission area is an enabler, and produces no direct effect on the battlefield. Force enhancement is the mission area that is most recognizable to military forces employed around the globe. Force enhancement includes reconnaissance and surveillance, environmental monitoring, communications, imagery/global geospatial information and services, and positioning, (4, III-20). This is the

mission area that delivers space power to joint forces in the form of battlespace awareness. Space control consists of surveillance, protection, prevention and negation. This mission area has the goal of ensuring the friendly use of space, while simultaneously denying the same to an adversary. This mission area is currently restrained by diplomatic decisions not to weaponize space, and also budgetary and technical limitations. Additionally, the plethora of commercial satellites providing remote sensing, imagery, and communications services to customers (potential adversaries) complicates the space control negation mission. The force application mission from space is currently restricted to weapons that pass through space, i.e. Intercontinental Ballistic Missiles.

Joint Pub 3-14 provides direction for planning space support to joint task force operations/operational level warfare. Unfortunately the construct that Joint Pub 3-14 uses is that of synchronizing forces, vice integrating information throughout the Joint Task Force.

“A supported CINC/JFC/JTF commander should designate a coordinating authority for space operations under the JFC (for example: the JFACC). In this position, the designated coordinating authority will coordinate space support on behalf of all commanders in theater in support of the JFC’s objectives and act in the capacity of “supported commander” for space with primary responsibility in theater for joint space operations planning purposes. To ensure prompt and timely support, USCINCSpace may authorize Direct Liaison Authorized (DIRLAUTH) between the coordinating authority and service components of USSPACECOM.” (4, II—9)

This quote indicates that the publication is talking about integrating forces when it uses the term “supported commander.” This observation is reinforced by the following quote. “The supported commander, as with air, land and sea power, must ensure the integration of space power into his campaign.” (4, xvi) At the operational-level, space power is different from air, land and sea power because it’s effect on the battlefield is different...it is providing information, and is not deploying forces in-theater that need to be synchronized/deconflicted. Space-derived information should be integrated throughout the joint task force, across functional lines.

Components shouldn't go to the JFACC to request space support...components require communications, intelligence, weather, warning and navigation support. Space provides critical information in all of these functional areas, but is not the end all, be all for any of them. Space is a critical battlefield operating system, but we fight with a system of systems, so it must be integrated with the other systems, not segregated and organized as a separate entity. "Space power is crucial, but does not operate alone, in assisting the joint force to enjoy superiority in command, control, communications, intelligence, navigation, and information processing." (5, 329)

If a component needs intelligence information, it goes to the JTF/J2, and the intelligence community determines the appropriate system to task to collect the desired information. If a component needs additional communications capacity, it goes to the JTF/J6, and the communications community determines the appropriate system. There are synergistic effects within these functional communities, i.e. a mix of ground-based, airborne, and on-orbit assets can be employed to provide the required information in the most effective manner.

Joint Pub 3-14 goes on further to discuss the space forces that deploy in-theater to support a Joint Task Force. "USSPACECOM deploys task-organized JSSTs (Joint Space Support Teams) OPCON to the JFC/JTF Commander to facilitate tasking and use of joint space forces, provide space-derived information, and ensure space support is provided to the combatant commander." (4, III-25) This seems to be duplicative, and even contradictory to the earlier identification of a "coordinating authority for space operations." (4, II—9) The draft publication also identifies the capability of component space support teams that deploy in support of the service components within a JTF. Additional deployable support teams such as the National Intelligence Support

Team (NIST) and the Joint Information Operations Center (JIOC) team are also referenced as complementary to the efforts of the space support teams.

Part 3

Information Operations

“Information is the currency of victory on the Battlefield.”

— Gen Gordon Sullivan, Former Army C/S.

Joint Publication 3-13: Joint Doctrine for Information Operations provides the reader with an overview of Information Operations (IO) missions conducted by joint military forces, identifies an organizational construct for joint task force IO, and a planning methodology to integrate IO into the joint campaign.

“Information operations (IO) involve actions taken to affect adversary information and information systems while defending one’s own information and information systems. IO require the close, continuous integration of offensive and defensive capabilities and activities, as well as effective design, integration, and interaction of C2 with intelligence support.” (3, I-9)

Joint forces conduct information operations to gain and maintain information superiority and to operate within the Observe, Orient, Decide, and Attack (OODA) loop of the adversary. A coherent IO strategy focuses offensive and defensive information operations on the Joint Force Commander’s objectives. “Offensive IO involve the integrated use of assigned and supporting capabilities and activities, mutually supported by intelligence, to affect adversary decision makers and achieve or promote specific objectives.” (3, viii) Offensive IO are characterized by actions taken to degrade, disrupt, or destroy an adversary’s information and information systems. These effects are achieved through the coordinated employment of Operational Security

(OPSEC) measures, deception activities, psychological operations (PSYOPS), electronic warfare (EW), physical attack/destruction, special information operations (SIO), and may include computer network attack. (3, viii) “Defensive IO integrate and coordinate policies and procedures, operations, personnel, and technology to protect and defend information and information systems.” (3, viii) Activities that are coordinated to produce an effective defensive IO strategy include, but are not limited to OPSEC, physical security, counter-deception, counter-propaganda, counter-intelligence, EW, and SIO. (3, viii) Information operations employ both lethal and non-lethal means, and are characterized by their effects on the battlefield (degrade, disrupt, deny, destroy) vice the weapons systems employed. Hence, an aircraft employing a precision-guided munition against an adversary’s radio-relay site is conducting offensive information operations, because the desired effect is the destruction of a communications node, and the subsequent degradation of a command and control system.

“JFCs always should establish a fully functional IO cell.” (3, ix) To ensure effective integration of IO throughout a Joint Force, an IO cell should be designated early on in the planning stage. “The JFC normally will assign responsibility for IO to a member of the joint staff, usually the Operations Officer (J3).” (3, IV-2) The composition of the IO cell is mission dependent, but retains the central responsibility of crafting a coherent IO strategy aimed at contributing to the accomplishment of the JFC’s objectives. This IO strategy is developed at the JTF-level, and then disseminated to the components for detailed planning and decentralized execution. The IO cell chief normally functions as a member of the Joint Target Coordination Board, and as such, represents IO targets during the development of the Joint Integrated Prioritized Target List (JIPTL). Joint Pub 3-13 also identifies the large number of joint activities and DoD agencies that can support the JTF through the IO cell. These entities include, but are

not limited to the Joint Warfare Analysis Center, the Joint COMSEC Monitoring Agency, the National Security Agency, the Defense Intelligence Agency, and the Defense Information Systems Agency. A central figure among these is the Joint Information Operations Center (JIOC) support team that deploys in-theater, and typically integrates into the JTF IO cell. “The JIOC is the principal field agency for Joint Information Operations support of the Combatant Commands. The center provides support to planning, coordination, and execution of DoD Information Operations worldwide.” (7, 1) Maj Gen Wright identified the difficulty in integrating the support of all these agencies. “There are many agencies in the IO business supporting the CINC. The challenge with those many agencies is to pull their capability and their support together coherently so that the CINCs really use what they bring to the fight in a timely basis.” (12, 5)

Joint Pub 3-13 identifies the IO cell as the “focal point for IO planning, to include coordination, integration, and deconfliction.” (3, V-3) The IO cell must develop an IO plan that is integral to the JFC’s campaign plan, and coordinates service, joint, and interagency IO capabilities. The IO plan should be integrated directly into the Basic Plan, and Annex C (Operations).

Part 4

Integrated Space and Information Operations...The New Construct

“Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur.”

— Guilio Douhet

Space forces operate in their wartime location (orbits) everyday, and have a global view of the battlespace. Due to this omnipresent characteristic, their contribution to warfare is optimized when their command and control is executed at a strategic level to optimize the entire system on a global basis. Therefore, CINCSPACE should retain combatant command and operational control of military space forces supporting JTF operations. Additionally, space superiority is not a viable objective for operational level warfare, as the level of effort required to deny an enemy complete access to space is prohibitive due to the proliferation of commercial satellites providing information via the internet, and the political and legal restraints on weaponizing space. Therefore, the focus for space operations supporting operational level warfare should be the integration of information vice the synchronization of forces.

Now that USSPACECOM has the assigned missions of computer network defense, computer network attack (1 Oct 2000), and operational control of the JIOC, it makes sense to take the integration of space and information operations to the next level. CINCSPACE should merge the JIOC support teams and the JSST, and integrate space support to JTF operations via the IO cell. Space operations can be integrated in this manner because they do not need to

deploy large forces into a theater...their assets are already deployed, and providing information from their on-orbit locations. The small number of space forces that do deploy in-theater should integrate into the IO cells at the JTF and component levels, and facilitate the identification of realistic/achievable information requirements. These space personnel can then communicate the JTF 's information requirements to USSPACECOM, which can then plan tailored space operations (as a supporting command) to provide the required information.

Planning for space support to JTF operations should be pulled out of Annex N, Space Operations, and integrated directly into the Information Operations plan in the Basic Plan and in Annex C, Operations. This would provide increased visibility to space operations, and ensure both space and information operations are viewed as an integral part of the joint campaign plan, and not a capability that is added on after the plan is built, and compartmentalized in a separate Annex.

Integrating space operations into the joint campaign via the Information Operations cell can produce synergistic effects that will enable both information superiority and dominant battlespace knowledge. Space control and space force enhancement missions have an increased effect on the battlefield when integrated with offensive and defensive information operations.

The space control elements of surveillance, prevention, protection and negation can be integrated directly as part of the information operations campaign. The surveillance of space objects identifies the enemy's space order of battle (if any), including commercial assets, projects when they will be overhead our forces, and determines what kind of information they can provide. Armed with this knowledge, a JTF planner can effectively plan defensive information operations (OPSEC activities, e.g. cover up critical signatures) and/or offensive information operations (Deception activities, e.g. display ruses) to mask the true intentions of the

Joint Force Commander. Protection and prevention activities contribute directly to the protection of friendly information systems. The space control mission of negation is really an offensive information operation (attack), as all space systems are currently information systems.

The impact of space force enhancement missions (communications, weather, warning, reconnaissance, and navigation) is maximized when integrated into JTF operations as information that enables dominant battlespace knowledge, and not as separate space forces that need to be synchronized with JTF forces. An example of this integration is the coordination of space and IO support to a precision strike against a strategic IO target. The IO cell can not only identify the IO target, but also provide information on periods of the day when the space-based navigation signal accuracy is maximized, the time of overflight for national Intelligence, Surveillance and Reconnaissance assets, and the potential weather impacts on precision-guided weapons systems. All of this information can then be synchronized to execute a GPS-guided precision strike timed just prior to an ISR overflight. This synchronization ensures timely bomb damage assessment, and facilitates re-attack recommendations, enabling the JFC to operate within the adversary's OODA loop.

Part 5

Recommendations

“Iraq lost the war before it ever began. This was a war of intelligence, EW, command and control, and counterintelligence. Iraqi troops were blinded and deafened...Modern war can be won by informatika and that is now vital for both the US and USSR.”

— Lieutenant General S. Bogdanov
Chief of the General Staff Center for Operational and Strategic Studies

Space support to JTF operations should be integrated with the Information Operations plan, and coordinated through the JTF’s IO cell. Creating a single coordinating authority for space support, and placing it within a component degrades the synergistic effect of integrating space and information operations at the operational level of warfare. Based on the assignment of the JIOC and Computer Network Defense and Attack missions to USSPACECOM, CINCSPACE should go one step further on the path to integration, and merge the Joint Space Support Teams with the JIOC Support Teams, and create Joint Information Superiority Teams (JIST). These JIST should train and exercise to deploy in support of JTFs, and function as the core of expertise for the JTF’s IO cell. Additionally, the separate Annex N for Space Operations should be eliminated. Planning for space support to a JTF should be integrated with the Information Operations planning, and inserted directly into the campaign plan in Annex C, Operations.

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